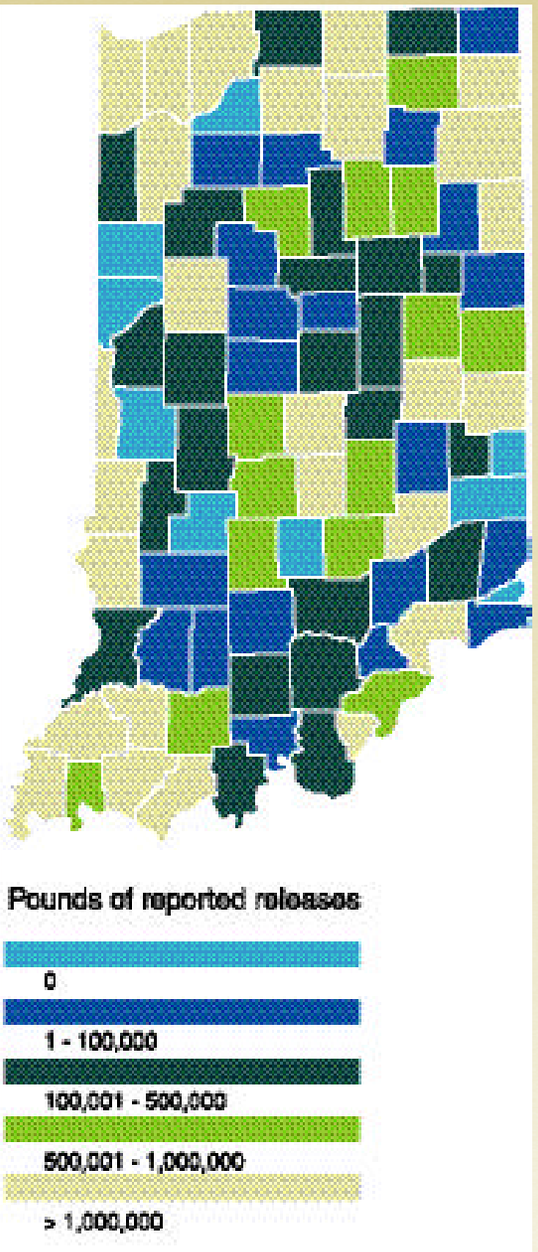
Measuring Pollutants

Toxic Chemical Releases in Indiana

Source: Toxic Release Inventory database, 1999



The U.S. EPA and IDEM collect information on toxic chemicals used by manufacturers through the Toxic Release Inventory (TRI). Facilities must file a TRI report if they have 10 or more employees, are included in Standard Industrial Classification codes that are required to report, and manufacture, process or otherwise use a listed toxic chemical in quantities greater than established thresholds in a calendar year.

Facilities submit reports by July 1, of each year, for releases and environmental waste that occurred the previous calendar year. The most current year of available TRI data is 1999. For example, 1999 forms were submitted by July 1, 2000.

CHEMICALS IN THE ENVIRONMENT

Just as air pollution blows freely across county lines and water pollution flows downstream, many chemicals affect multiple segments of our environment. Many of these pollutants are toxic chemicals that persist in the environment or can cause long-term health effects or pose serious environmental threats. Congress created the Toxic Release Inventory (TRI) to provide accurate information about potentially hazardous chemicals and their use to help communities hold companies accountable and make informed decisions about how toxic chemicals are to be managed.

Lead, mercury and polychlorinated biphenyls (PCBs) are three chemicals of concern because of past and current widespread use. They are very toxic and they build up in the environment. To provide more information on these and approximately 17 other persistent bioaccumulating toxic (PBT) substances, changes to the TRI reporting requirements were made in 2000. Beginning with TRI submissions due July 1, 2001, reporting thresholds for certain PBT chemicals or chemical categories will be lowered to 100 pounds or 10 pounds. In the case of dioxin and dioxin-like compounds the reporting threshold will be lowered to 0.1 gram. Current reporting thresholds for all TRI reportable substances are 25,000 pounds for manufacturing and 10,000 pounds for processing or otherwise using a reportable chemical. For more information on TRI reporting or to review county, facility or chemical specific data, please visit our Web site.

Persistent Bioaccumulating Toxic (PBT) Substances

100 lb/yr	Aldrin	Polycyclic compounds
	Methoychlor	Tetrabromobisphenol A
	Pendimethalin	Trifluralin
10 lb/yr	Chlordane	Benzo (g, h, I) perylene
	Heptachlora	Hexachlorobenzene
	Mercury	Mercury compounds
	Toxaphene	Octachlorostyrene
	Isodrin	Pentachlorobenzene
	PCBs	
0.1 gr/yr	Dioxin and dioxin-like compounds	

www.in.gov/idem/oppta/tri

RELEASES TO THE ENVIRONMENT FROM INDUSTRY

Indiana manufacturers reduced their reported releases of toxic chemicals from 134 million pounds in 1991 to 60 million pounds in 1999. This 55 percent reduction is based on chemicals and facilities that were subject to reporting since the beginning of the TRI program. The releases reported from these facilities decreased by slightly more than one percent—about one million pounds from 1998. Decreases in the amounts of methylene chloride, trichloroethylene and tetrachloroethylene—32,000, 540,000 and 80,000 pounds respectively, accounted for most of the decrease.

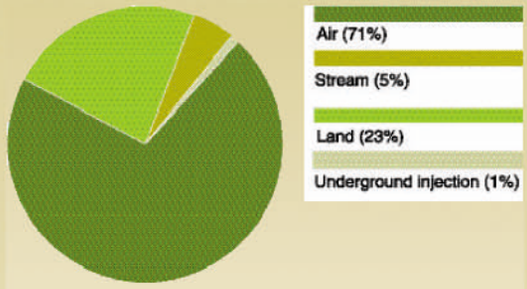
As a result of the TRI reporting requirement changes that are reflected for the first time in the 1998 data, Indiana experienced an 82 percent increase in the total amount of toxic chemical releases reported in 1997. It should be noted that the releases associated with the new reporting sectors in 1998 were most likely occurring in prior years. However, due to the rule changes, releases are now required to be reported to the inventory. Also shown in the bar chart, the total amount of reported releases to the environment increased from 133 million pounds in 1998, to 139 million pounds in 1999—approximately a five percent increase. Combined, the seven new industry sectors included for the first time in the 1998 data reported a 2.75 percent increase from 1998. Power plants contributed the most to the seven new reporting sectors' releases with a 2.9 million pound increase from 1998.

Releases to the air account for 71 percent of the total releases in 1999. Seven chemicals: hydrochloric acid, sulfuric acid, styrene, methylene chloride, toluene, hydrogen fluoride and ammonia comprised approximately 76 percent of the air releases in 1999. In 1998, releases to Indiana streams made up approximately 5 percent of the total reported releases. In 1999, stream releases increased 180 percent approximately 4.4 million pounds, due to a steel manufacturing facility reporting releases of four million pounds of nitrate compounds. Lake and Gibson counties had the most releases among Indiana's 92 counties. The two counties combined account for approximately 19 percent of the total toxic chemical releases in the state.

During the fall of 2000, IDEM updated the state TRI database to incorporate all reporting revisions received from facilities since 1991. The historical data (i.e., 1991 to 1995) are noticeably different from last year's state of the environment report as a result of making all submitted revisions to the data. The Indiana database is now more current and consistent with U.S. EPA data.

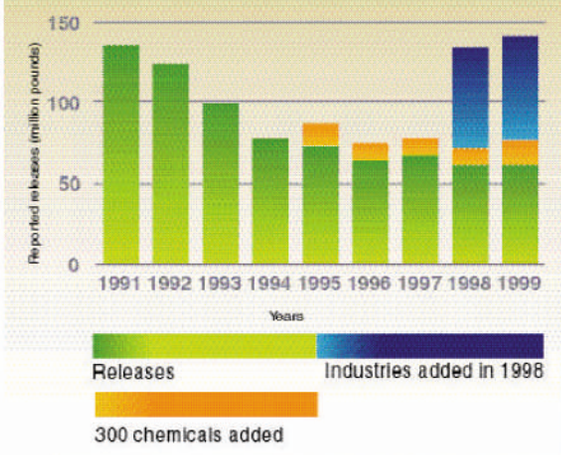
Type of Toxic Chemical Releases

Source: IDEM's Toxic Release Inventory database, 1999



Trends in Toxic Chemical Releases

Source: IDEM's Toxic Release Inventory database, 1999



Air: *Total annual amount of all releases to the air of the TRI reportable toxic chemicals exceeding the reporting threshold that is released through stacks, vents, ducts, pipes, equipment leaks, evaporative losses, releases from building ventilation systems or any other releases from confined air streams or fugitive emissions.*

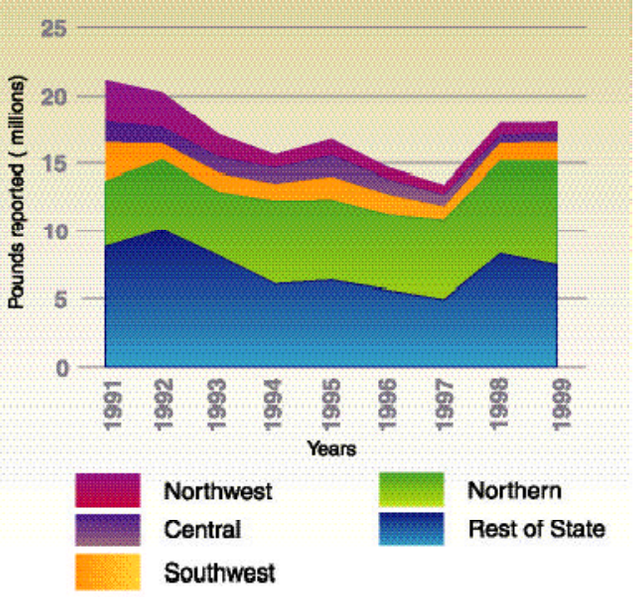
Stream: *Total annual amount of all releases to each receiving stream or water body of the TRI reportable toxic chemicals exceeding the reporting threshold. Includes process outfalls from pipes and open trenches, releases from on-site wastewater treatment systems, and stormwater runoff.*

Underground Injection: *Total annual amount of the TRI reportable toxic chemicals exceeding the reporting threshold that are injected into all wells including Class 1 wells at the facility.*

Land: *Total annual amount of the TRI reportable toxic chemicals exceeding the reporting threshold that are landfilled on-site, used for land treatment or application farming, held in surface impoundment, or released to the land in spills or leaks.*

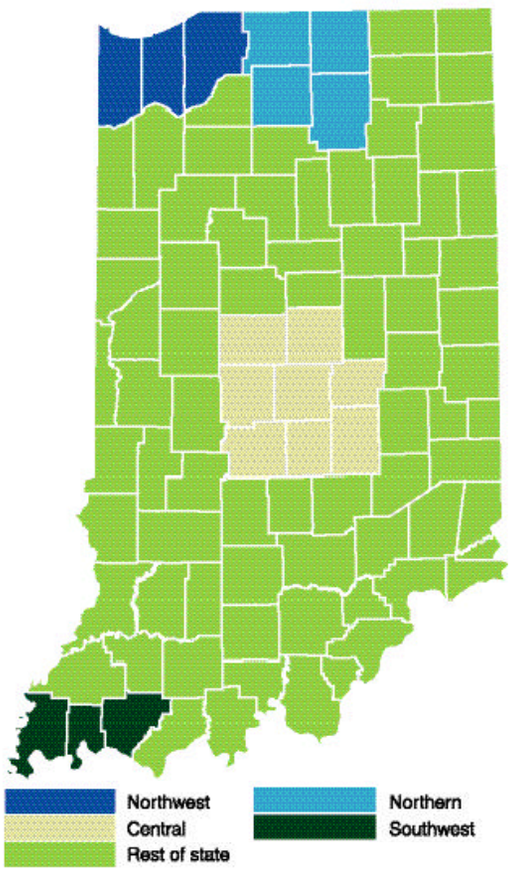
Trend in Known and Potential Carcinogen Releases

Source: IDEM's Toxic Release Inventory database, 1999



Priority Urban Areas for Carcinogens

Source: IDEM's Toxic Release Inventory database, 1999



KNOWN AND POTENTIAL CARCINOGENS

The TRI relies on the Occupational Safety and Health Administration's (OSHA) definition of "carcinogen" to identify chemicals that warrant added attention due to their potential to cause cancer in humans. The OSHA definition includes chemicals that are determined to be known, probable or possible carcinogens. The 1999 reported carcinogen releases are down 18 percent from 1991 amounts. However, the data demonstrates a five percent increase since 1995 in the state total.

The reporting requirement changes of 1998 resulted in an increase in reported carcinogen releases due to the addition of approximately 70 first time reporting facilities in the state. The new reporting sectors added approximately 4.4 million pounds and 4 million pounds to the totals reported for 1998 and 1999 respectively. New sectors reported an approximate nine percent decrease in carcinogens releases in 1999. Metal compounds disposed in permitted landfills account for about half of the new sectors' reporting of carcinogens.

Relative to the original reporting sectors, a three percent increase in releases in the northern region offset reductions of several other substances that resulted in a three percent decrease in the total reported releases of carcinogens in 1999. Approximately 500,000 fewer pounds of carcinogen releases were reported in 1999, compared to 1998.

In 1998, Indiana identified four regions with large urban populations and significant manufacturing activity as priority regions. Approximately 48 percent of the total releases of carcinogens were reported in four counties: Elkhart, Marshall, Gibson and Adams. The central, northwest and southwest region carcinogen releases decreased by 59 percent, 28 percent, and 15 percent respectively, since 1995. The rest of the state and northern regions both experienced 18 percent increases in reported carcinogen releases, between 1995 and 1999.

GOVERNOR'S TOXIC REDUCTION CHALLENGE

On April 24, 1998, Governor Frank O'Bannon announced the Governor's Toxic Reduction Challenge. The Governor's Challenge is a mechanism of implementing three separate goals established to reduce carcinogen and persistent, bioaccumulative (PBT) compound releases to air and water. The challenge made to Indiana manufacturers and business was to "energetically support the state's goal to reduce toxic chemical releases to air and water using 1995 TRI data as a baseline."

Persistent bioaccumulative toxic pollutants (PBTs) are highly toxic, long-lasting substances that can build up in the food chain to levels that are harmful to humans and ecosystem health. They are associated with a range of adverse human health effects, including effects on the nervous system, reproductive and developmental problems, cancer and genetic impacts. U.S. EPA's challenge in reducing risks from PBTs stems from the pollutant's ability to travel long distances, to transfer rather easily among air, water and land, and to linger for generations in people and the environment. The populations at risk, especially to PBTs such as mercury, dioxins and polychlorinated biphenyls (PCBs), are children and the developing fetus.

Several Indiana TRI reporters have made significant progress in reducing releases of carcinogenic or PBT chemicals. Each of the facilities listed in the bar to the right are participants in the Governor's Toxic Reduction Challenge and have demonstrated the listed reductions in the TRI. For more information on the challenge, please see our Web site.

www.in.gov/idem/oppta/govawards/toxicchallenge

There are three goals for the Governor's Toxic Reduction Challenge:

1. Achieve a 50 percent reduction, by December 31, 2001, in the amount of carcinogens and PBTs released to air and water in large urban areas of the northwest, northern, central and southwestern regions of the state.

2. Achieve a 60 percent reduction, statewide, by December 31, 2002, for the same chemicals.

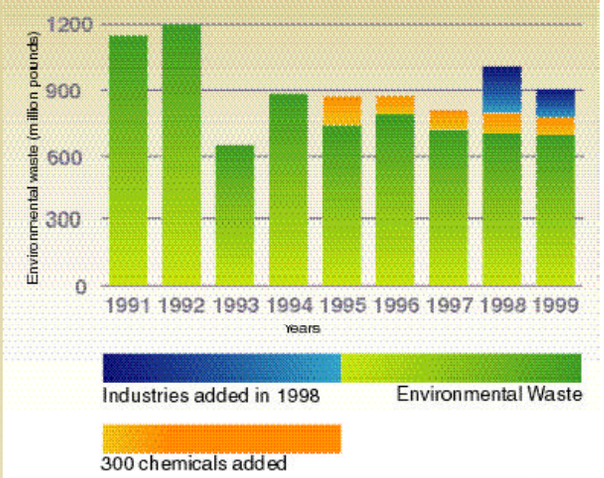
3. Achieve a 50 percent reduction, statewide, by December 31, 2003, for all chemicals reported to TRI.

Challenge Participants

Company Name	% Change
Navistar International Transportation Corp. (Indianapolis)	-100
Preferred Technical Group (Columbia City)	-100
United Technologies Carrier (Indianapolis)	-100
Western Tar Products Corporation (Terre Haute)	-99
Best Access Systems (Indianapolis)	-99
Reilly Industries Inc. (Indianapolis)	-95
Gaska Tape (Elkhart)	-93
GE Appliances (Bloomington)	-86
Harrison Steel Castings Co. (Attica)	-83
Allison Transmission Division (Indianapolis)	-83
GE Plastics (Mount Vernon)	-63
Rolls Royce Company (Indianapolis)	-63
Eli Lilly Tippecanoe Labs (Lafayette)	-60
Delphi Delco Electronics Systems (Kokomo)	-50
Eli Lilly Clinton Labs (Clinton)	-30
Criterion Catalysis (Michigan City)	-28
Inland Steel Flat Products (East Chicago)	-26

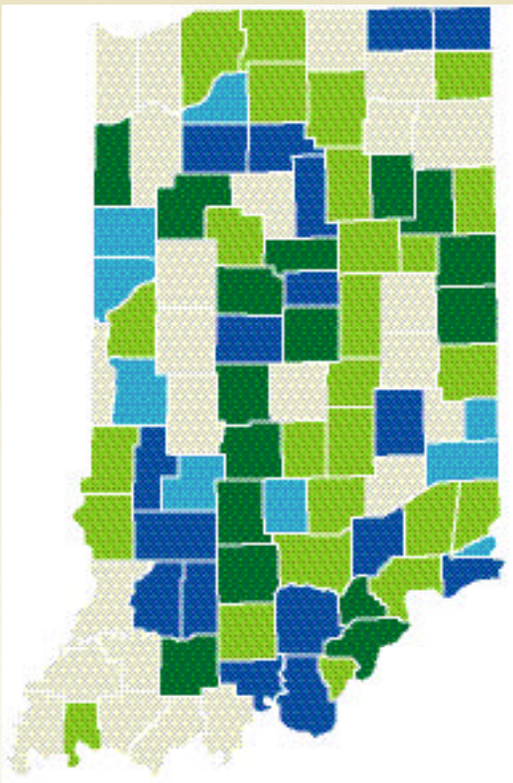
Indiana Environmental Waste Generation

Source: IDEM's Toxic Release Inventory database, 1999



Toxic Chemical Waste from Manufacturers

Source: Toxic Release Inventory database, 1999



ENVIRONMENTAL WASTE FROM INDUSTRY

In addition to reporting releases of toxic chemicals, TRI facilities must report on their environmental waste generation—these are chemicals that are: recycled, burned for energy recovery, destroyed through treatment or disposed of in landfills. These waste management activities may occur either at the reporting facility or at an off-site location. Environmental waste also includes the releases discussed earlier.

Between 1991 and 1995, Indiana saw a 34 percent decrease in toxic chemicals in environmental waste reported by facility sectors subject to reporting since the beginning of the TRI program (i.e., baseline green area of graph titled "Indiana Environmental Waste Generation"). Looking at the five year trend between 1995 and 1999, the baseline facilities reported an approximate six percent decrease. From 1998 to 1999, baseline facility reported environmental waste decreased less than one percent. The total environmental waste reported by all facilities in 1999 decreased about 10 percent, approximately 100 million pounds, from 1998 (in green, yellow and blue areas combined).

The latest data for Gross State Product (GSP) indicates that Indiana's economy has grown faster than the national average both in the most recent year of data (1997-98) and over the past decade (1988-98). GSP is for states what Gross Domestic Product (GDP) is for the nation – a measure of the value of all goods and services produced in the state during a given year.

Between 1991 and 1998 (the latest year of available data from the data source), Indiana experienced an average annual growth rate of 6.9 percent in Gross State Product (GSP) from the manufacturing sector (i.e., SIC codes 20 to 39). During that same time period, environmental waste reported to TRI by manufacturers (i.e. SIC codes 20 to 39) dropped 21 percent. Between 1997 and 1998, Indiana's manufacturing GSP grew 7.1 percent, whereas the total environmental waste reported to TRI decreased approximately two percent.

This economic information is provided for simple comparison purposes.

Source: U.S. Bureau of Economic Analysis.

In 1998, seven new industry sectors began reporting to the TRI for the first time because of reporting requirement changes implemented by U.S. EPA. Six of the seven new sectors report in Indiana. The table below illustrates the percent change, in reported amounts of environmental waste, from the six new reporting sectors in Indiana.

New Sector	Percent Change from 1998	Number of Facilities in 1999
Chemical Production	15%	19
Coal Mining	38%	7
Bulk Oil Terminals	21%	13
Solvent Recovery	-3%	5
RCRA Transfer, Storage, Disposal	-91%	2
Electricity Generating	5.49%	23
Total	**-39%**	**69**